

Application Serial No. 10/658,063
Amendment dated February 18, 2005
Reply to Final Office Action dated February 1, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original): An internal combustion engine, comprising:

an engine housing including a crankcase and a cylinder;

a crankshaft, connecting rod, and piston assembly disposed within said engine housing, said piston reciprocable within said cylinder to generate positive and negative pressure pulses within said crankcase during cranking and running speeds of said engine;

a carburetor attached to said engine housing; and

a priming system, comprising:

a chamber in fluid communication with said crankcase through a restrictor, said chamber also in fluid communication with said carburetor through a one-way valve permitting fluid flow from said chamber to said carburetor, said restrictor dimensioned to allow substantially uninhibited communication of pressure pulses between said crankcase and said chamber at engine cranking speeds and to dampen communication of pressure pulses between said crankcase and said chamber at engine running speeds;

whereby at engine cranking speeds, positive pressure pulses may pass from said chamber to said carburetor through said one-way valve, and at engine running speeds, said positive pressure pulses are substantially absent within said chamber.

2. (original): The engine of Claim 1, wherein said crankcase includes a breather valve permitting escape of fluid from said crankcase and preventing entry of fluid into said crankcase.

3. (original): The engine of Claim 1, wherein said carburetor includes a fuel bowl containing a quantity of fuel with an air space above the fuel, said chamber in fluid communication with said air space whereby at engine cranking speeds, said positive pressure pulses pass into said air space and pressurize said air space.

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4. (original): The engine of Claim 1, wherein said chamber is disposed within said crankcase, said restrictor comprising a restriction orifice between said crankcase and said chamber.
5. (original): The engine of Claim 1, wherein said chamber is disposed externally of said crankcase, said restrictor comprising a passageway fluidly communicating said crankcase and said chamber.
6. (original): The engine of Claim 1, further comprising a passageway fluidly communicating said chamber and said carburetor, said one-way valve disposed within said passageway.
7. (original): The engine of Claim 1, further comprising a carburetor vent allowing air from the atmosphere into said fuel bowl at engine running speeds.
8. (original): The engine of Claim 1, wherein said restrictor further comprises a valve element permitting fluid communication between said crankcase and said chamber at engine cranking speeds and blocking fluid communication between said crankcase and said chamber at engine running speeds.
9. (original): The engine of Claim 1, wherein said chamber includes an opening disposed below a level of oil within said crankcase, whereby if said oil level falls below said opening at engine running speeds, communication of said pressure pulses between said crankcase and said chamber is substantially uninhibited such that said positive pressure pulses may pass from said chamber to said carburetor through said one-way valve.

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10. (original): An internal combustion engine, comprising:

an engine housing including a crankcase and a cylinder;

a crankshaft, connecting rod, and piston assembly disposed within said engine housing, said piston reciprocable within said cylinder to generate positive and negative pressure pulses within said crankcase during cranking and running speeds of said engine;

a carburetor attached to said engine housing; and

a priming system, comprising:

a chamber in fluid communication with said crankcase, said chamber also in fluid communication with said carburetor;

a check valve disposed between said chamber and said carburetor, said check valve permitting fluid flow from said chamber to said carburetor and preventing fluid flow from said carburetor to said chamber; and

means for allowing substantial pressure equalization between said crankcase and said chamber at engine cranking speeds such that positive pressure pulses may pass from said chamber and through said check valve to said carburetor for priming, and for preventing substantial pressure equalization between said crankcase and said chamber at engine running speeds such that positive pressure pulses are not present within said chamber.

11. (original): The engine of Claim 10, wherein said means comprises a restriction orifice between said crankcase and said chamber, said crankcase and said chamber in fluid communication through said restriction orifice.

12. (original): The engine of Claim 11, wherein said chamber is disposed within said crankcase, said restriction orifice comprises an opening in a wall of said chamber.

13. (original): The engine of Claim 10, wherein said carburetor includes a fuel bowl containing a quantity of fuel with an air space above the fuel, said chamber in fluid communication with said air space whereby said positive pressure pulses pass into said air space at engine cranking speeds and pressurize said air space.

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14. (original): The engine of Claim 10, further comprising a one-way breather valve in fluid communication with said crankcase and permitting escape of fluid from said crankcase.

15. (original): The engine of Claim 10, further comprising means for venting said carburetor during engine running speeds.

16. (canceled)

17. (currently amended): The method of ~~Claim 16~~ Claim 20, wherein said preventing step subsequent to starting the engine comprises inhibiting fluid communication between the crankcase and the chamber to substantially eliminate positive pressure pulses in the chamber.

18. (currently amended): The method of ~~Claim 16~~ Claim 20, wherein said conducting step during cranking comprises conducting positive pressure pulses to an air space above fuel in a fuel bowl of the carburetor to pressurize the fuel bowl.

19. (currently amended): The method of ~~Claim 16~~ Claim 20, wherein said allowing step comprises allowing fluid communication between the crankcase and the chamber through a restrictor.

20. (currently amended): ~~The method of Claim 16, wherein said preventing step subsequent to starting the engine comprises A method of operating an internal combustion engine, comprising the steps of:~~

~~cranking a crankshaft, connecting rod, and piston assembly of the engine to reciprocate the piston within a cylinder and to generate positive and negative pressure pulses within a crankcase of the engine;~~

~~allowing substantially uninhibited fluid communication during cranking between the crankcase and a chamber in fluid communication with the crankcase;~~

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during cranking, conducting positive pressure pulses from the chamber to the carburetor for priming while preventing passage of negative pressure pulses from the chamber to the carburetor;

starting the engine; and

subsequent to starting the engine, automatically preventing substantially the passage of positive pressure pulses from the chamber to the carburetor by venting the positive pressure pulses at a location between the chamber and the carburetor.

21. (canceled)

22. (canceled)

23. (previously presented): An internal combustion engine, comprising:
an engine housing including a crankcase and at least one cylinder;
a crankshaft rotatably disposed within said engine housing;
a connecting rod and piston corresponding to each said cylinder, each said connecting rod connected to said crankshaft and each said piston reciprocable within a respective cylinder to generate positive and negative pressure pulses within said crankcase during cranking and running speeds of said engine;
a carburetor; and
a priming system, comprising, in serial order:
a restrictor;
a chamber in fluid communication with said crankcase through said restrictor; and
a one-way valve permitting fluid flow from said chamber to said carburetor, said restrictor dimensioned to allow substantially uninhibited communication of pressure pulses between said crankcase and said chamber at engine cranking speeds and to dampen communication of pressure pulses between said crankcase and said chamber at engine running speeds;

whereby at engine cranking speeds, positive pressure pulses may freely pass from said chamber to said carburetor through said one-way valve, and at engine running

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speeds, communication of said positive pressure pulses from said crankcase to said chamber is damped.

24. (previously presented): The engine of Claim 23, wherein said carburetor includes a fuel bowl containing a quantity of fuel with an air space above the fuel, said chamber in fluid communication with said air space, whereby at engine cranking speeds, said positive pressure pulses pass into said air space and pressurize said air space.

25. (previously presented): The engine of Claim 23, wherein said chamber is one of:
disposed within said crankcase, said restrictor comprising a restriction orifice between said crankcase and said chamber; and
disposed externally of said crankcase, said restrictor comprising a passageway fluidly communicating said crankcase and said chamber.

26. (previously presented): An internal combustion engine, comprising:
an engine housing including a crankcase and at least one cylinder;
a crankshaft rotatably disposed within said engine housing;
a connecting rod and piston corresponding to each said cylinder, each said connecting rod connected to said crankshaft and each said piston reciprocable within a respective cylinder to generate positive and negative pressure pulses within said crankcase during cranking and running speeds of said engine;
a carburetor; and
a priming system, comprising:
a chamber in fluid communication with said crankcase through a restrictor, said chamber also in fluid communication with said carburetor through a one-way valve permitting fluid flow from said chamber to said carburetor, said restrictor dimensioned to allow substantial pressure equalization between said crankcase and said chamber at engine cranking speeds and to prevent substantial pressure equalization between said crankcase and said chamber at engine running speeds;

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whereby at engine cranking speeds, positive pressure pulses may pass from said chamber to said carburetor through said one-way valve, and at engine running speeds, said positive pressure pulses are substantially absent within said chamber.

27. (previously presented): The engine of Claim 26, wherein said carburetor includes a fuel bowl containing a quantity of fuel with an air space above the fuel, said chamber in fluid communication with said air space, whereby at engine cranking speeds, said positive pressure pulses pass into said air space and pressurize said air space.

28. (previously presented): The engine of Claim 26, wherein said chamber is one of:
disposed within said crankcase, said restrictor comprising a restriction orifice between said crankcase and said chamber; and
disposed externally of said crankcase, said restrictor comprising a passageway fluidly communicating said crankcase and said chamber.